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Polymer Scientist Sogah Joins the Department

Professor Dotsevi Sogah, formerly the research manager of polymer chemistry at du Pont Central Research and Development, joined the Cornell faculty in January. Sogah, who is recognized for his work on group transfer polymerization and host-guest chemistry, was president of the International Society of African Scientists (1987-88), served on its Board of Directors, and is currently serving on the Board of Chemical Sciences and Technology of the National Research Council. Professor Sogah conducts research in three main areas of polymer chemistry, which he describes below.

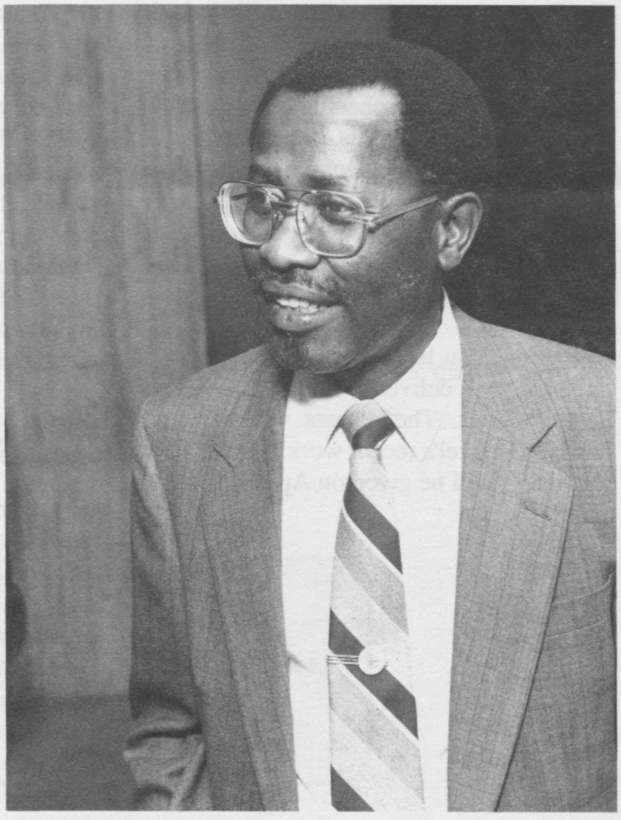
"The first area involves the use of polypeptide and protein secondary structures to control macromolecular architecture. Biopolymers are characterized by the occurrence of conformationally defined secondary and tertiary structures. Molecular recognition in macromolecular systems will best mimic the natural systems. We have found that through the use of molecular modeling, and by judiciously selecting and preparing an appropriate protein segment which was then linked to a reactive organic segment, we could prepare a sequence-specific bioorganic polymer hybrid that mimics the molecular recognition characteristics of the native protein.

"Can activities associated with protein segments be retained when that segment is in a synthetic, unnatural environment? Can we selectively induce specific cells to bind to a specific segment in the hybrid? Preliminary results indicate that we can. We will continue to explore this new area and possibly extend the approach to the synthesis of primitive enzyme models.

"We are using organometallic chemistry in conjunction with our living polymerization concepts to design and control structures of novel macromolecules. All our methodology developments are preceded by small molecule model studies. In a systematic study involving silicon enolate chemistry we introduced a new method for synthesis of polymers: using all modern tools at our disposal. A reactive functional group is present in the initiating species, which upon reaction with a suitable building block gets regenerated at the chain end without any side reactions.

We would like to extend such regenerative concepts to other main group elements, particularly those that form hypervalent structures. We are interested in controlling sequence specificity of synthetic polymers; macromolecules shaped like stars, ladders, cylinders and combs, rigid rods and liquid crystalline polymers.

Surfaces and interfaces play a crucial role in both biological and electronic applications, and a better understanding of interfacial biointeractions is critical to the appropriate design of biocompatible surfaces. There is currently a paucity of the fundamental information needed for a rational design of biocompatible biomaterials. Hence, our third major research area involves the design and synthesis of novel self-assembling molecules that can form monolayers at water interface using Langmuir-Blodgett techniques. This permits us to prepare well defined, quasi two-dimensional surfaces with the appropriate placement of reactive functional groups. These will be used in the study of protein interactions at surfaces, molecular recognition in the LB subphase, and organic surface reactivities."



Department News

Treating Chemophobia

Is "chemistry" a scary word? Recent articles in professional magazines for chemists and educators have addressed the issue of chemophobia in several ways, including suggestions for better science education for the non-science major. It seems clear that most people are not well prepared to live in a society that asks them to make daily decisions about their health and the environment. It seems equally clear that every institution with the means to do so should make an effort to educate as many people as possible about the world in which we live.

Cornell's Department of Chemistry offers a course called "The World of Chemistry," initiated in the fall semester of 1989. Intended for students in both the College of Arts and Sciences and the College of Agriculture and Life Sciences, the course explores the role of modern chemistry in our lives, and includes not only the study of basic chemistry, but also the philosophical and historical context within which chemistry is applied today.

This spring the course is led by guest lecturer David N. Harpp, a professor of chemistry at McGill University. Harpp has taught a similar course at McGill since 1982, with such success that enrollment is now the largest of any non-required course at the Montreal institution.

Harpp uses a two-projector lap-dissolve technique to show slides illustrating topics such as food and food additives, the media's influence on scientific issues, the diet/cancer question, drugs, water and air pollution, and crime detection.

Will these dynamic fifty-minute sessions produce a generation of scientifically literate Cornellians? It's a step in the right direction, and one we hope will inspire students to keep on learning more about the sciences throughout their lives.

ACS Breakfast

The Department of Chemistry will sponsor a continental breakfast at the 201st National ACS Meeting in Atlanta this April. The event is scheduled for Tuesday, April 16, from 8:00 - 9:00 am at the Atlanta Hilton Vienna Room. Tickets for the breakfast (Event #107) are $5.

1990-91 Debye Lectures

Professor Jean Rouxel of the University of Nantes will deliver the 1990-91 Debye Lecture Series. The lectures, which describe Rouxel's recent work in solid state chemistry, will be given on April 22, 23 and 25.

1991 Wentink Symposium

Paul Rauch, with Professor DiSalvo, **Yat-Ting Wong,** with Professor Hoffmann, and **Yi Zheng,** with Professor Baird, will give brief talks on their research projects at the 1991 Wentink Symposium scheduled for March 12. The three fifth-year graduate students have been selected to receive this year's Wentink Prize, which is awarded to graduate students who have distinguished themselves both academically and in the quality and quantity of their research.

Grad Student Wins Award

Mark Bommarito was one of three graduate students nationwide to receive the 1990 Procter & Gamble Award in physical chemistry. He was chosen by the ACS Division of Physical Chemistry for the high quality of a scientific paper he co-authored with J.H. White and Professor Abruña, which was accepted for publication in the *Journal of Physical Chemistry.*

Dow Fellow Named

Michael E. Burba, in his fourth year of graduate study with Professor Albrecht, was named the Dow Fellow for 1991. Michael received his undergraduate degree at MIT, and a Masters's degree from Northeastern University while employed at GTE Laboratories in Waltham, Massachusetts. He is working on photoconductivity of non-polar liquids.

Alumni News

Ronald C. Bernotas, PhD '86, lives in Cincinnati, Ohio and is employed by Merrell-Dow, Inc.

Paul Brynes, PhD '75, is a technology assessment and acquisitions specialist for Abbott Laboratories Diagnostics Division in Illinois.

Michael W. Ellison, AB '85, lives in Costa Mesa, California and is currently an attorney with the Orange County office of Latham & Watkins.

Gwynn Fowler Briggs (formerly Davy), AB '67, received an MBA in '88 and is the Programs Manager at Hope International in Maine.

Janice Gorzynski Smith, AB '73, received her PhD in organic synthesis from Harvard University in 1978, and is an associate professor of chemistry at Mount Holyoke College in South Hadley, Massachusetts. At Mount Holyoke she has carried out a research program in the area of organosilicon chemistry, and has collaborated with Mary Fieser on two volumes of the series "Reagents for Organic Synthesis." Janice is married to Dan Smith, BSAGR '73, who is an emergency room physician at BayState Medical Center in Springfield, MA. They have three daughters, Erin (11), Megan (8), and Jenna (5). She says she can't believe it's been 17 years since she left beautiful Ithaca.

William F. Haddon is a Research Chemist with Western Regional Research Center, United States Department of Agriculture in California.

Troy M. Harmon, MS '86, lives in Chapel Hill, North Carolina.

David N. Harpp, who was a postdoctoral fellow with A.T. Blomquist, is a professor of chemistry at McGill University in Montreal. David is a visiting professor here at Cornell for the spring 1991 semester, teaching Chem 203, *The World of Chemistry* (see article on opposite page).

Krzysztof Holzer, PhD '89, works for Procter & Gamble's Latin America Products Development Division in Miami.

Richard S. Jung, AB '81, received a Doctor of Medicine degree after leaving Cornell. He lives in Costa Mesa, California and is the Director of Neurosurgical Anesthesiology at the University of California at Irvine.

Patty Kane, PhD '87, who was a postdoctoral associate at the Institute of Molecular Biology at the University of Oregon, has moved to the Chemistry Department at the College of William and Mary in Williamsburg, Virginia.

Katherine Liu, AB '89, is a graduate student at MIT.

Byrd A. Lochtie, AB '60, is working at the Broadway Animal Hospital in Eureka, California.

Douglas L. Pearson, PhD '90, is a senior research chemist with Dow Chemical in Midland, MI. He and his wife, Sue, welcomed a baby girl (Molly Marie) on December 31, 1990.

Helen Hurrell Petach, PhD '89, is a postdoc at Colorado State University, Fort Collins, Colorado.

Elmer E. Schallenberg, AB '51, received a PhD since leaving Cornell and has been stationed in Hamburg, Germany for the last 8 years. He represents Texaco on technical matters involving lubricants.

Marcia Sellos-Moura, AB '88, has moved from Colorado back to Ithaca, NY.

Michael C. VanDerveer, PhD '79, works at the Food and Drug Administration's Regulatory Food Chemistry Branch in Washington, DC.

Peter Walsh, PhD '77, is with the Fuel Science Program at Penn State.

Robert L. Whetten, PhD '84, who is an associate professor of chemistry at UCLA, received a Packard Foundation Award last year.

Howard J. Worman, AB '81, completed training in internal medicine at the New York Hospital and did postdoctoral work in the Laboratory of Cell Biology at the Rockefeller University. He is an assistant professor of medicine at the Mount Sinai School of Medicine in New York, where he has started a new lab with research focus on the molecular and cell biology of the nuclear membrane. His clinical interest is liver diseases.

Alumni Deaths

Clayton Wynn, PhD '35, died in April 1989.

The Society of Cornell Chemists asks you to support the cost of printing and mailing this Newsletter with your voluntary, annual dues of $10. Make your 1991 check payable to "Cornell Chemistry" and mail it to The Society of Cornell Chemists, G-03 Baker Laboratory, Department of Chemistry, Cornell University, Ithaca NY 14853-1301

Mystery Photo

Can you help us identify the people in this picture?

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